

REMARKS

The present amendment is prepared in accordance with the new revised requirements of 37 C.F.R. § 1.121. A complete listing of all the claims in the application is shown above showing the status of each claim. For current amendments, inserted material is underlined and deleted material has a line therethrough.

Applicants appreciate the thoroughness with which the Examiner has examined the above-identified application. Reconsideration is requested in view of the amendments above and the remarks below.

DETAILED ACTION**Election/Restrictions**

Applicants' election of claims 11, 13-16 in the reply filed on April 25, 2006 is acknowledged. Because applicants did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 21-25 have been canceled and the claims remaining in the application are 11 and 13-16.

Claim Rejections – 35 USC § 103

Claims 11 and 13-16 are rejected under 35 USC 103(a) as being unpatentable over Sayka et al. (U. S. Patent No. 6,766,813) in view of Lyle O. Malotky (U. S. Patent No. 5,120,369).

Sayka et al. is cited to disclose an apparatus for removing contaminate particulate matter from a semiconductor wafer and disclose a support (Abstract and Fig. 1), energy (acoustic wave) forming means to dislodge particulate matter (Col. 3, lines 1-20) and means to remove particulate matter (Col. 4, lines 45-47).

Sayka et al. is noted by the Examiner as failing to disclose means for applying a sacrificial coating of a polymer, curing and removal of particulate matter with it.

Malotky is cited to disclose an apparatus for removing material from a surface by spraying a polymer in solution or suspension which cross-links to a film which is removable by stripping (Abstract).

The Examiner concludes that it would have been obvious for one of ordinary skill in the art at the time of the invention to have used strippable polymer material to encapsulate dislodged particles from the substrate of Sayka et al. in order to safely and completely remove contaminate particulate matter from the substrate.

Applicants' invention is directed to an apparatus for removing contaminate particulate matter from an integrated circuit semiconductor substrate surface by applying a sacrificial coating of a curable polymer on the surface of the substrate which is to encapsulate and suspend the particles therein. Energy means are used to dislodge at least some of the particulate matter from the surface of the substrate into the sacrificial coating

and then the curable polymer is cured to form a cured polymer strippable film containing the particulate matter. The cured polymer strippable film is then removed from the surface of the substrate as a strippable film and provides a substrate surface having less particulate matter thereon.

It is respectfully submitted that the Sayka et al. and Malotky references do not disclose nor teach Applicants' invention whether taken singly or in any proper combination.

Firstly, it is respectfully submitted that neither reference discloses nor teaches an apparatus whereby contaminants are contained in a polymer film on the surface of a substrate which polymer film is stripped as a polymer film from the surface substrate thereby removing the contaminant particles from the surface of the substrate. In other words, after the stripping operation a strippable film is obtained which contains the contaminant particles therein.

Applicants have amended main claim 11 to highlight the distinction between the invention and the prior art. Thus, the claim now clearly states that a cured polymer strippable film is formed containing the particulate matter and that after removing the particulate matter containing curable polymer sacrificial strippable film from the surface of the substrate the substrate surface has less particulate matter therein. Also formed is a stripped film containing the particles. Support for the amendments may be found throughout the specification, and, for example, on page 8, the paragraph beginning at line 3 and in the drawings, Figs. 1E and 2E.

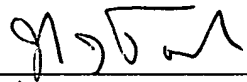
Regarding the Sayka et al. reference, the Examiner acknowledges that the reference does not disclose means for applying a sacrificial coating of a polymer, curing and removing of particulate matter with the polymer. Sayka et al. only shows the use of acoustic waves to dislodge particles from the surface of a wafer which dislodged particles are washed away with a stream of cleaning fluid. As Sayka et al. notes at col. 4, the paragraph beginning at line 45, gravity and acoustic waves may cause most, if not all, particles to be removed from the surface of the wafer. There is however the need to assist and remove these particles with the use of a stream of cleaning fluid. A spray nozzle 60 is used which sprays the surface of the wafer and removes the acoustic wave dislodged contaminants. It is clear that there is no teaching of forming a polymer film on the surface of the wafer which contains the contaminant particles therein and which film is cured and removed as a film (stripped) whereby the film contains the contaminant particles.

Malotky does disclose applying a polymer to a surface of a substrate to remove contaminants from the surface of the substrate but this is where any relationship to Applicants' invention ends. It is clear from Malotky that the polymer system used to apply to the surface of the substrate must be easily decrosslinked so that the polymer film can be easily stripped and safely disposed of. See col. 4, line 10, et seq. In example 1, the sacrificial coating is applied to the surface of a substrate containing a toxic agent and stripping of the panels was done with a 5% Alconox in water solution. It is clear that a cured polymer film is not formed containing the contaminant particulate matter which film is then stripped as a film from the surface of a substrate.

In summary, it is respectfully submitted that both references show the washing away of particles. Neither reference shows removing the contaminants in a polymer film which film is stripped from the surface of the substrate forming a stripped film containing the particles and a clean surface.

It is respectfully submitted that the application has now been brought into a condition where allowance of the case is proper. Reconsideration and issuance of a Notice of Allowance are respectfully solicited. Should the Examiner not find the claims to be allowable, Applicants' attorney respectfully requests that the Examiner call the undersigned to clarify any issue and/or to place the case in condition for allowance.

Respectfully submitted,

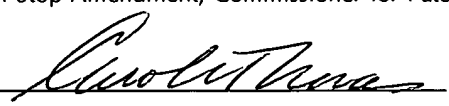


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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date indicated below as first class mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 2231301450.

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